



## European Mineralogical Union

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### JULIE COSMIDIS & ALBERTO VITALE BROVARONE: MEDAL FOR RESEARCH EXCELLENCE 2025

One of the means by which the European Mineralogical Union (EMU) fosters and encourages research in the field of mineralogical sciences is to present a silver medal each year. The “**EMU Research Excellence Medal**” is presented to early career scientists (no more than 15 years since completion of PhD) who have made significant contributions to research and who are active in strengthening European scientific links.

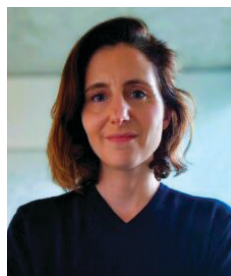


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In 2025, the EMU awarded two Research Excellence Medals. One of the recipients is **Prof. Julie Cosmidis** from the Department of Earth Sciences, Oxford University (United Kingdom), whereas the second medal came to **Prof. Alberto Vitale Brovarone** from the Department of Biological, Geological, and Environmental Sciences, University of Bologna (Italy).

**Prof. Julie Cosmidis** is honored for her works on biomineralization and its role in recording microbial activity through geological time. **Prof. Alberto Vitale Brovarone** is recognized for his outstanding research on high-pressure petro-mineralogy, deep carbon cycling, and abiotic hydrocarbon formation in subduction zones.

Congratulations to both laureates on their exceptional contributions to mineralogical sciences!



#### Prof. Julie Cosmidis

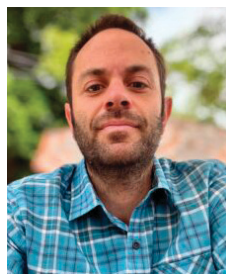
Julie Cosmidis obtained her PhD in 2013 in Paris (France). After two years of postdoctoral studies at the University of Colorado, Boulder (USA), she joined Pennsylvania State University (USA) as an assistant professor. In 2020, she returned to Europe as an associate professor at Oxford University (UK).

Her principal research interest is using biomineralization to track microbial activity over geological time. She combines cutting-edge tools, such as nano-scale analyses and imaging (EXAFS, TEM, cryo-TEM, STXM, Raman Spectroscopy) and laboratory experiments, to provide constraints on the geological record of biomineralization processes. She is currently the recipient of an ERC-CoG grant dedicated to understanding the driving forces of biomineralization leading to the bioproduction of high-value minerals.

Julie Cosmidis was notably able to constrain the biogeochemical cycles of phosphorus and iron in a ferruginous lake (Pavin Lake, France), showing the formation of amorphous phosphates by microbial bodies in this analogue of Precambrian oceans. She also developed experiments on hydroxyapatite biomineralization. She has extended our understanding of biomineralization processes by studying carbonates, sulfur, sulfides, and silicates, and even discovered novel abiotic carbon and sulfur microstructures, which can be mistaken for biological remains in the fossil record.

In addition to her groundbreaking experiments in biomineralogy, her dedication to her community is attested by her strong involvement as an editor. She is the Principal Editor of *Geo-Bio Interfaces*, and board member of *Geobiology* and *Microbiological Chemistry and Geomicrobiology*. She regularly participates in media events for the general public.

Julie Cosmidis has emerged as a leading figure in the field of biomineralization at the international level, by combining leading-edge experiments in mineralogy and biochemistry and nano-scale investigations to constrain the driving forces of biomineralization. The major impact of her numerous achievements makes Prof. Cosmidis a talented recipient of the EMU Medal for Research Excellence 2025.



#### Prof. Alberto Vitale Brovarone

Right from the start, Alberto Vitale Brovarone has taken advantage of European possibilities in mineralogy by doing his PhD (2011) at both the University of Torino (Italy) and University of Montpellier (France) on the study of high-pressure terranes in Alpine Corsica.

His research has focused on the structural evolution of orogens, in particular their high-pressure minerals such as lawsonite, and the deep and various forms of carbon and how to use this as a petrogenetic tracer. He settled in France for two postdocs and was then hired by the French National Centre for Scientific Research (CNRS) in Paris in 2014. His research has diversified toward carbon and hydrogen interactions and complex rock–aqueous fluid reactions. He returned to Italy in 2018, where he demonstrated abiotic hydrocarbon production during serpentinization in subduction zones (ERC-CoG grant). He became a full professor in Bologna in 2020.

Alberto Vitale Brovarone has successfully built interdisciplinary collaborations at European scales, bridging field geology, mineralogy, metamorphic petrology, and geochemistry and now biomineralogy. He was a councilor at the European Association for Geochemistry and is a current member of the editorial board of *Lithos*. He has also appeared in numerous Italian media programs and regularly participates in science festivals for the general public.

Alberto Vitale Brovarone is an outstanding petro-mineralogist, who will continue to rejuvenate the tradition of field geology and to combine it with modern technologies dedicated to the investigation of subduction zones and the storage and cycling of C, H, and unconventional abiotic hydrocarbons. For the major impact of his numerous achievements, Alberto Brovarone is truly worthy to receive the EMU Medal for Research Excellence 2025.

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